

## ABSTRACT OF THE DISCLOSURE

5 A surface optical device apparatus includes a surface optical device capable of emitting or receiving light through a surface thereof and a thick layer formed of a radiation-curable or electron-beam-curable material, such as a polymerizable resist. In the thick layer, a guide hole for inserting an end portion of a light-transmission member, such as an optical fiber, and a plastic optical fiber with a flat end face or a lens-shaped end face, therein is formed at a position corresponding to the  
10 surface of the surface optical device such that the surface optical device can be optically coupled to the light-transmission member inserted in the guide hole. The guide hole is formed in the thick layer by performing a patterning on the thick layer using photolithography to selectively harden the thick layer and developing the thick layer.